

LINKAGES



Notes of the Research Planning and Coordination Staff

NORTHEAST FISHERIES CENTER



April 1990

Fisheries Management

1. The **Mid-Atlantic Fishery Management Council** met on 11-12 April in Annapolis MD. The Council voted to not support Amendment #1 to the South Atlantic Council's Swordfish Fishery Management Plan, as written. The South Atlantic Council will delay action on Amendment #1 until August 1990, but plans to implement regulations by 1 January 1991. The Mid-Atlantic Council's next meeting is 23-24 May 1990 at the Holiday Inn, Somerset NJ.

2. On 18 April, the **New England Fishery Management Council** asked the Secretary of Commerce to take emergency action to protect seriously depleted swordfish stocks this year. The request proposes to reduce the 1990 quota to 8.479 million pounds and impose a 40-lb dressed weight minimum size.

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Sea Grant

1. The preliminary **1990 - 1992 WHOI Sea Grant Proposal to the NOAA National Sea Grant College Program** is now available. Proposed research projects include:

Fisheries Biology and Management -- Bacterial Production of Essential Dietary Lipids and its Occurrence and Significance in Finfish and Shellfish Nutrition; Shellfish Toxicity in Southern New England; Nutritional and Ecological Importance of Protozoans in the Diet of First-Feeding Winter Flounder Larvae, *Pseudopleuronectes americanus*; The Impact of Hematopoietic Neoplasia on the Energy Metabolism of the Soft-Shell Clam; Impact of Hematopoietic Neoplasia on Soft-Shell Clam Population Dynamics; Enhancement of Soft-Shell Clam Recruitment in Flow-Generated Larval "Sinks."

Human Impact on the Environment -- Nitrogen Budget for a Eutrophic Salt Pond: Relative Importance of Benthic Regeneration and Groundwater Inputs; Quick Enzymatic Test for Contamination of Marine Resources by Toxic Organics; Instrumental High Resolution, Long-Term Measurement of Primary Production and Oxygen Concentration in Eutrophic Coastal Ponds.

Coastal Processes -- Formation and Maintenance of Shore-Oblique Sand Ridges: Hydrodynamics and Sediment Transport; Coastal Upwelling in Cape Cod Bay.

International/Policy -- International Marine Science Cooperation Program; Estimating the Value of Marine Mining for Strategic Minerals Supply.

2. **International Marine Science Funding Guide** has recently been published by the WHOI Sea Grant Program.

3. Volume 5 Number 1 1990, **Sea Grant Abstracts** of publications from the Nation's Sea Grant Programs is now available.

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Vessel Operations

1. The NOAA ship *Delaware II* completed Parts II and III of the **Spring Bottom Trawl Survey**. A total of 153 stations (86 during Part II and 67 during Part III) was occupied on Georges Bank and in the Gulf of Maine. Bongo tows were conducted at 33 of the stations. During Part II, a rocking chair dredge was deployed to collect surf clams and ocean quahogs for analysis of shellfish poisoning toxicology. At selected stations, a Smith-McIntyre dredge was used to obtain an undisturbed substrate sample.

2. The Scientific Vessel Coordinator met with personnel of Battelle Memorial Institute, Duxbury, MA and

EPA, Washington, D.C., to discuss logistical items pertaining to proposed work at the 106-Mile Dumpsite. Instructions for a cruise aboard the DELAWARE II provided by Battelle were revised and submitted to AMC for review, approval, and signature.

3. The Scientific Vessel Coordinator participated in the National Vessel Committee Meeting at Gaithersburg, Maryland. He met with the Deputy Director of ONOC to discuss the proposed modification of the R/V Delaware II and the reactivation of the R/V ALBATROSS IV, and met with representatives of the R/V DELAWARE II for 106-Mile Dupsite Cruises.

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ICES

The Center submitted to the General Secretary of the International Council for the Exploration of the Sea eight titles of papers to be presented to the Biological Oceanography Committee at the ICES Statutory Meeting in October 1990.

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NEFC Research Council

1. The following papers were completed by the Research Council in January 1990: **Professional Development/Excellence in Research, Library Services in the Northeast Fisheries Center, and Information Flow Within the NEFC.**

2. **Jim Hughes**, Milford Laboratory, was named recently as head of the Research Council for one year. **Council members** at this time include: Al Bejda, Sandy Hook; Mark Berman, Narragansett; Donna Busch, Narragansett; Steve Edwards, Woods Hole; Ahsan Kahn, Gloucester; Anne Richards, Woods Hole; and Carl Sindermann, Oxford.

Contact: Jim Hughes
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NEFC Ecosystems Monitoring Strategy Committee

A 62 page report on **Options for an Ecosystem Monitoring Program on the Northeast Continental Shelf** was submitted to the RPAC Chief, Dr. Michael P. Sissenwine, and distributed to the Executive Staff. The report examines options for detecting long-term changes in the fisheries stocks, both vertebrate and invertebrate, in the Northeast Region (Cape Hatteras through the Gulf of Maine), as well as parameters to be measured for describing changes in the ecosystem that supports finfish and shellfish as a consequence of habitat degradation, fishing mortality, or global climate change. The report was prepared by six scientists representing RPAC and three research Divisions.

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NEFC Research Planning

The RPAC Chief, Division Chiefs, Science and Research Director, and other senior staff met on 10 April to develop a NEFC strategy for seeking new funds from two NOAA programs, Coastal Ocean Program and Climate and Global Change Program, as well as submissions to the NMFS FY92 Budget Initiatives.

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Notes of the Research Planning and Coordination Staff

NORTHEAST FISHERIES CENTER



June 1990

Fisheries Management

1. **New England Fishery Management Council** met on 20-21 June in Danvers, MA. The Council spent a substantial amount of time discussing lobsters, large pelagics, scallops, and groundfish. There was a move from the Lobster Committee to set a control date for limiting entry to the fishery, however, the Council tabled this motion for the moment. On large pelagics, the Council recommended that the Secretary take emergency action on the shark fishery. Emergency action was also recommended for scallops, but a moratorium was not adopted. The Multispecies Committee has taken two FAAS actions to public meeting and is discussing management measures to reduce fishing mortality under Amendment 5 of the FMP. The next meeting is scheduled for 8 - 9 August.

2. The **Mid-Atlantic Fishery Management Council** met on 27 June in Essington, PA. The Council has a new Chairman, Axel B. Carlson, Jr. who is from New Jersey. Prof. Lee Anderson was named Vice Chairman. Most of the meeting was devoted to the mackerel quotas for 1991. Finally, the staff recommendations for squid, mackerel, and butterfish were adopted with little change from last year. In other business, the Surf Clam/Ocean Quahog FMP Amendment 8 has been published as a final rule, establishing an ITQ type system. The Council recommended emergency action on scallops and has proposed that the Mid-Atlantic Council take over the lead on scallop management.

3. Andy Rosenberg and Tom Morrissey have been putting together a **reference set of FMPs** and a **full set of regulations** for the Northeast region. If you wish to consult this material, please see Andy.

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ICES

1. **Dr. Fred Thurberg** (FED), Chairman of the Working Group on Biological Effects of Contaminants, Co-Chaired an **ICES/IOC Biological Effects Workshop** to test biological techniques to monitor the North Sea. The Workshop was held at the Alfred Wagener Institute for Polar and Marine Research in Bremerhaven Germany, 12 -30 March 1990. Over 70 scientists from Europe, Canada, and the United States and 8 research vessels were involved. A preliminary report, which includes discussion of the techniques tested and the preliminary results, is now available.

2. **ICES codes** for the titles of papers submitted by NEFC for presentation at the ICES Statutory Meeting, Copenhagen, 4 - 12 October 1990 have been received and forwarded to the authors. Authors were requested to send an advanced copy of each paper with a separate copy of the abstract to reach the appropriate Committee Chairman by 25 July. Multiple copies of each paper with the original and a copy of the separate abstract are due to the ICES Secretariat on 31 August.

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Vessel Operations

1. The Scientific Vessel Coordinator met with personnel of Batelle Memorial Institute, Duxbury, MA; NOS, Rockville, MD; and Center personnel at Narragansett, RI to review logistical items pertaining to the proposed work at the 106-Mile Dumpsite.

2. The *Delaware II* has been in the shipyard since late May for its annual repair period. It is scheduled to return to Woods Hole on 17 July and will undergo final installation and testing of new winches. In addition, an

articulated crane will be installed on the vessel during the dockside period in July. There will be a one day shakedown cruise in preparation for the DWD-106 studies.

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Research Council

A new paper entitled "Research Planning Report" was recently completed by Gary Wikfors (FED) and Steve Murawski (CUD) of the Research Council. The report is based on a survey of organizations outside government and NEFC personnel to evaluate the effectiveness of planning in research environments. The paper was reviewed by the RPAC Chief, Dr. Michael Sissenwine, and distributed to the NEFC Executive Staff.

Contact: James Hughes
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NEFC Ecosystem Monitoring Committee

Components of the NEFC Ecosystem Monitoring Committee prepared a **Technical Development Plan (TDP)** for seeking funds from NOAA to support a moored, instrumented buoy system; hydroacoustics sampling system for underway profiling of micronekton and pelagic fish on ecosystem monitoring cruises; and baseline surveys of the toxic chemical concentrations in demersal fish and benthic mollusc resource species on the Northeast Continental Shelf. Proposals would be submitted to NOAA's Coastal Ocean Program (COP), Climate and Global Change Program (CGC), or FY92 Data and Information Management System Initiative to seek funding for the above resource intensive components of the recommended NEFC Ecosystem Monitoring Program or the associated data base management system required to convert monitoring data to useful information in a timely fashion.

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Notes of the Research Planning and Coordination Staff

NORTHEAST FISHERIES CENTER



September 1990

Fisheries Management

1. The Mid-Atlantic Fishery Management Council re-elected Mr. A. Carlson, Chairman and Dr. L. Anderson, Vice Chairman during its September meeting. The Council is currently holding public hearings on Amendment 1 to the summer flounder plan. This amendment would implement a 5-1/2 inch minimum mesh size for vessels fishing for fluke.

2. The New England Fishery Management Council elected Mr. R. Jones, Chairman and Mr. E. Spurr, Vice Chairman at its September meeting. The Council is moving forward with Amendment 4 to the Multispecies FMP and Amendment 4 to the sea scallop FMP.

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Peer Program Reviews

The NEFC FY 1991 schedule of external peer reviews was submitted to NMFS Headquarters in response to a request of the NMFS Senior Scientist. NEFC is tentatively planning reviews of the **Marine Mammals Investigation: Plan for Research** in March or April and the **12-Mile Dump Site Study and Research Plans of the Environmental Processes Division** in June.

Seven other areas of the NEFC program have already undergone formal reviews during the period of FY 1988 through FY 1990. These include, Experimental Biology Branch, Information Services Section, Population Dynamics Branch, Ecosystem Dynamics Branch, Fisheries Statistics Program, Fisheries Biology Investigation, and Resource Surveys.

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Vessel Operations

1. The *Delaware II* completed Part I of Cruise 90-11 **Autumn Bottom Trawl Survey**. One hundred and eighty two stations were completed in the waters of the Atlantic Shelf from Cape Lookout, North Carolina to Nantucket Shoals.

2. The projected vessel schedule for FY 1992 was submitted to Fisheries Headquarters in Washington, D.C. for presentation to the Fleet Allocation Council.

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URI/NOAA CMER Program

Funding of the URI/NOAA CMER Program for 1990 - 1991 was announced this month by the NOAA Grants Management Division. Three series of proposals were approved. The first proposal package involves six developmental or student-oriented projects in support of NMFS fisheries science and resource management.

- Remote sensing, hydrographic structures, and zooplankton production in the northern Gulf of Maine: Interaction of biological and physical phenomena over short spatial and temporal scales (D. Gifford, E. Durbin, J. Bisagni, and C. Meise-Munns)
- Genetics of copepod (*Calanus finmarchicus*) populations in the Gulf of Maine (K. Wishner)
- On-line access to *in situ* oceanographic data sets (P. Cornillon)
- Use of the passive hemolytic plaque assay to measure the immune response of Atlantic salmon and winter flounder (J. Bodammer and T. Bradley)

- An economic analysis of the U.S. market for blue mussels (J. Anderson)
- Fisheries law enforcement: research and policy (J. Sutinen)

Studies by Wishner and Anderson are continuing from 1989-1990 and are in their final year of funding. Studies by Gifford *et al.* and Bodammer and Bradley involve NEFC staff as co-principal investigators.

The remaining two proposal packages provide support for ongoing investigations of right whales in the north-western Atlantic, cooperative studies between the URI Ocean Remote Sensing Laboratory and the NEFC Marine Climatology Investigation, and assessments of estuarine eutrophication across the U.S. The estuarine study is funded by the NOAA National Ocean Survey and will be conducted jointly by URI and CMER personnel.

Contact: Garry Mayer
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Sea Grant

1. The preliminary 1991-1992 Virginia Sea Grant College Program Proposal is now available. Proposed research projects include:

Marine Resources Development - Aquaculture

- Rejuvenation of the Chesapeake Bay oyster industry: development of disease-resistant *Crassostrea virginica* and assessment of disease resistance in *Crassostrea gigas*
- Defense capacity and *Perkinsus marinus* tolerance in native and non-native oysters
- Nutritional requirements and microencapsulated diets for hybrid striped bass larvae
- Identification and elimination of unacceptable flavor compounds occurring in high-density, closed-system aquaculture environments

Marine Resource Development - Fisheries and Oceanography

- An analysis of factors affecting recruitment of larval and juvenile Atlantic croaker

- Recruitment dynamics of the blue crab: patterns, processes, and fisheries applications
- Blue crab megalopae recruitment: role of fronts and mesoscale physics on aggregation and transport into the estuary
- Economics for hard blue crab fishery management planning
- Statistical algorithms for stock identification of marine resource organisms
- Genetic divergence of Virginia striped bass populations: assessment of DNA fingerprinting
- Decision-making behavior and economic information needs for regulating the U.S. sea scallop fishery
- Development of new methods to assess the impact of recreational angling

Marine Environmental Research

- Nutrients limitation and nutrient enrichment impact on microbial food webs in the upper estuarine transition zone
- The controls and interactions of the redox cycling of iron, manganese and sulfur in estuarine sediments
- Comparative analysis of constraints on phytoplankton and bacterial productivity in tidal creeks of the eastern shore of the Chesapeake Bay and the coastal lagoon complex
- Effects of suspension feeder-dominated macrobenthic assemblages on nutrient cycling in the low salinity estuary
- Predicting the impacts of sea floor and bay floor mining and material disposal: modeling bed mobility and mixing

Seafood and Natural Products

- Synthetic ice-suppressing macromolecules: development of enhanced bioengineered mimics of marine antifreeze peptides

2. Sea Grant Abstracts, Vol. 5 No.2-3 1990, of publications from the nation's Sea Grant Programs is now available.

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NEFC Research Planning

RPAC staff continue to develop an evaluation system which combines the **Analytic Hierarchy Process (AHP)** with optimization techniques to provide the Science and Research Director with logical alternatives for budget allocation. A meeting was held with the Division and Staff Chiefs to demonstrate the utility of the AHP for evaluating NEFC programs and allocating resources for FY 1991. Program Support Staff provided the budgetary information. The Division/Staff Chiefs participated in constructing a "decision tree" to relate the programs to the NMFS Strategic Plan.

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Other RPAC Activities

Dr. Andrew Rosenberg presented a paper on stock rebuilding strategies over different time scales at a **North Atlantic Fisheries Organization (NAFO) special symposium** on the effects of uncertainty on fisheries assessment and management held in Halifax, Nova Scotia. The paper is in review for publication by NAFO.

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Notes of the Research Planning and Coordination Staff



NORTHEAST FISHERIES CENTER

November 1990

Fisheries Management

The **SAW 11 Plenary** session was held in Woods Hole, 5-7 November. More than 80 persons attended all or part of the meeting. Participants included representatives of fisheries organizations in the states of Connecticut, Massachusetts, New York and Atlantic States Marine Fisheries Commission (ASMFC); Mid-Atlantic (MAFMC) and New England (NEFMC) Fishery Management Councils; NMFS Northeast Fisheries Center (NEFC) and Regional Office (NERO); U.S. Coast Guard Academy; and other research institutions.

A major objective of the Plenary was to review the report of the Stock Assessment Review Committee (SARC) and develop an Advisory Report on Stock Status of the 11th SAW based on the SARC consensus. Special topics included reviews of the Atlantic salmon assessment program, organization and work of the Marine Mammals Investigation, available information on the tilefish fishery, and sea sampling progress; overview and methodology of squid assessments; and presentations on modelling stock rebuilding strategies. The Plenary also agreed on a set of guidelines for the presentation of assessment reports and identified twenty species/stocks, as well as methodology used to estimate harbor porpoise by catch, as possible subjects for technical review.

Three new SAW Working Groups were formed:

Sea Sampling Analysis W. G., with Darryl Christensen (NEFC/CUD) as Chair, to evaluate properties of estimates of discard from current sea sampling data and estimates of sample size needed to achieve specified precision levels for discard estimates;

Working Group on Modeling Rebuilding Strategies, including review of existing models, with Dr. Pamela Mace (NEFMC) as Chair; and

Working Group on Long-Term Stock Trends, with Dr. Andrew Rosenberg as Chair, to review information on major long-term shifts in stock levels and/or distribution of fishery resources.

It was confirmed that the SAW Steering Committee would be in place within several weeks to guide the next, SAW 12, process and to set priorities for species to be reviewed by the SARC. The Steering Committee will include Directors of NEFC, NER, NEFMC, MAFMC, and ASMFC.

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Vessel Operations

1. The *Delaware II* completed Cruise 90-12, **Larval Herring Study**. The cruise was the second in a series of six ichthyoplankton surveys being conducted during 1990 and 1991 to monitor changes in the Georges Bank Atlantic herring stock. On the cruise, 123 stations were occupied. Shipboard examination of samples indicates a presence of herring larvae throughout most of the survey area.

2. The *Delaware II* also completed cruise 90-13, **106-Mile Dump Site: Sediment Trap Study**.

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NEFC Research Planning

1. FY91 Resource Allocation briefing for the NEFC Science and Research Director was held on 20 November. Planning and Evaluation Section (PES) staff presented the results of the Analytical Hierarchy Process (AHP)-Optimization exercise with attendant rec-

ommendations of funding for Divisions/Staffs and individual Center Investigations under a variety of budget allocation scenarios. The AHP ranked all projects relative to their effectiveness in fulfilling the Center's research mission.

Previously, senior Center managers and staff had worked with RPAC to define the Center research mission in light of proposed agency goals to: rebuild and maintain stocks, develop forecasting capabilities, address protected species concerns, deal with sea-food safety concerns, better understand the role of habitat conservation in supporting living marine resources (LMR) populations, and develop appropriate management and support structures to maximize research productivity and to service user information needs. The optimization exercise provided to Center management options for resource allocation to programs based on the cost of the proposed projects and their effectiveness in addressing the Center's research mission. Resource allocation was based on funds that were available after the Center's fixed costs (facilities, contracts, and on-board personnel) had been met.

Due to inflation and the proposed FY91 salary increase, resources available for FY91 allocation were only 55 percent of those available in FY90.

2. PES staff helped coordinate the Center input for NOAA's FY93 Marine Programs Modernization Initiative. NMFS will be taking the lead in implementing this initiative. To meet agency goals, applicability of new technology in molecular biology, satellite platforms and sensors, digital data systems, hydroacoustic systems, sampling technologies, and ecosystem model development will be examined.

3. PES staff also helped to coordinate the Center input to base-funded activities currently being carried out in the area of Climate and Global Change (CGC). NOAA has a major CGC initiative underway, which is scheduled for increased resource allocations beginning with FY91. The NMFS component of CGC research is, however, not scheduled for implementation until FY92 and beyond.

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Notes of the Research Planning and Coordination Staff



NORTHEAST FISHERIES CENTER

December 1990

Fisheries Management

1. The SAW Steering Committee met in Boston on 20 December. David Keifer, MAFMC; Douglas Marshall and Chris Kellogg, NEFMC; Paul Perra, ASMFC; Richard Roe, NERO; and RPAC staff representing NEFC attended the meeting. The Committee decided on the timing of the Spring Stock Assessment Workshop (SAW 12), stocks that will be technically reviewed next by the Stock Assessment Review Committee (SARC), and special topics for consideration at the SAW 12 Plenary.

The SAW 12 SARC will meet the week of 3 June to review: Atlantic mackerel, butterfish, *Illex* and *Loligo* squids, Gulf of Maine cod, Southern New England and Georges Bank yellowtail flounder, winter flounder, and bluefish. Assessment analyses from state biologists, the Fishery Management Councils, and the Center will be included. The sea scallop analysis of the New England Fishery Management Council will be reviewed in a SARC Special Session planned for 17-18 January.

The SAW 12 Plenary will be held 10-12 July 1991. Special topics for consideration include: analysis of sea sampling data, the implications of survey methodology modifications for assessments, and reports from lobster and squid working groups.

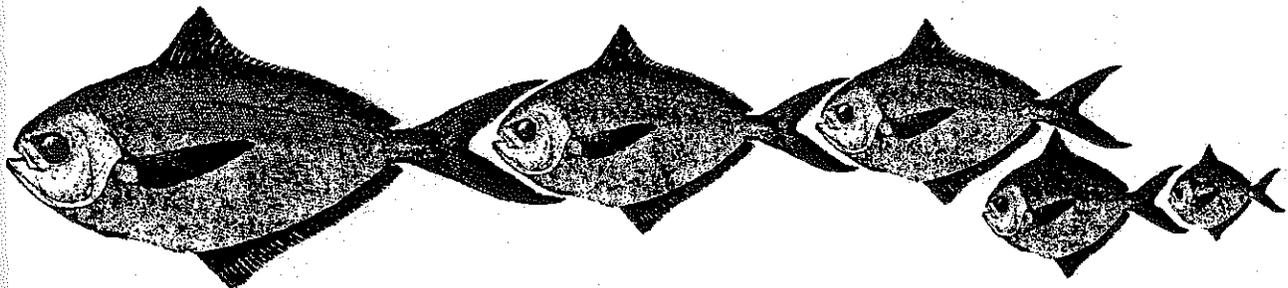
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2. The Mid-Atlantic Fishery Management Council met on 11-13 December. Major topics discussed were Council recommendations on foreign fishing allocations of mackerel, management measures for sea scallops, and proposals for a seafood safety monitoring program.

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3. The faculty of the Statistics and Computer Science Department of the University of Rhode Island (URI) visited the Center on 21 December to discuss possible collaborative projects through the URI/NOAA CMER Program. Meetings were held with scientists from Population Biology, Population Dynamics, and Fisheries Statistics and Economics Branches; Marine Mammals Investigation; and the Paralytic Shellfish Poisoning project. Collaboration in two to three well-defined projects may be established with either URI statistics students or faculty members. A later meeting on collaborative work in computer science is being planned.

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URI/NOAA CMER Program

The URI/NOAA CMER Program is working with other elements of NOAA to host three workshops of potential interest to the NMFS Northeast Center and NMFS Northeast Regional Office. The first and fourth weeks of January will see related conferences on the **expressions of eutrophication in estuarine waters of the United States**. The workshops are sponsored by the NOAA/NOS Strategic Environmental Assessment Division and will assist in defining a protocol by which to evaluate the significance of eutrophication-related problems in the Nation's estuaries. The protocol will be applied as part of a larger program being carried out under the aegis of the URI/NOAA CMER Program and sponsored by NOS.

The formats of the two workshops are similar but have been subdivided to review efforts relating to primary production (*i.e.*, phytoplankton abundance, changes in phytoplankton assemblages, nuisance or toxic algal blooms, floating algal scums, submerged aquatic vegetation, sea weeds, and net ecosystem production) in the first session (3-5 January 1991). Eutrophication effects on bottom water oxygen concentrations, secondary production, benthic organism abundance, and benthic species composition will be considered in the second session (24-26 January 1991). Both meetings will have open plenary sessions, where invited speakers will present summary papers on aspects of the problems for which they have expertise. Interested members of the URI, NMFS/NEFC and NERO, and EPA communities are encouraged to attend.

The third workshop is a Coastal Ocean Program (COP)-sponsored **coastal habitat mapping conference** to be conducted at the URI Alton Jones Center on 8-10 January 1991. The URI/NOAA CMER Program and the URI College of Resource Development are the local hosts. The effort is part of the NOAA COP Estuarine Habitat Studies Program and will be chaired by Dr. Kenneth Haddad (Florida Department of Natural Resources) and Dr. Jerome Dobson (Oak Ridge National Laboratory). Topics to be covered include the applicability of proposed protocols for habitat-mapping based on the use of LANDSAT imagery to the Northeast, and possible coordination between NOAA and state activities and the activities and interests of other federal agencies in the region. Several NEFC and NERO personnel have been invited to participate. This workshop is the second of four regional evaluations of plans for COP habitat mapping and habitat change analyses. If protocol development proceeds as anticipated, regional change analyses may begin as early as FY 1992.

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Vessel Operations

The *Delaware II* completed cruise 90-14, **Larval Herring Study**. The cruise was the third in a series of six ichthyoplankton surveys conducted during the 1990-91 autumn/winter period to monitor the changing status of Atlantic herring in the Georges Bank area. One-hundred-thirty plankton stations were occupied during the cruise. Shipboard examination of the samples showed herring larvae present throughout most of the survey area.

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ICES

The **ICES Multispecies Working Group** met in Woods Hole, 4-13 December 1990 to work on mathematical models for predicting fish stock abundance and discuss the mechanics of competition among marine mammals, sea birds, and humans for food fish. More than 20 scientists from 12 countries participated in the meeting. The group is chaired by Dr. Steven A. Murawski, Chief of the Population Dynamics Branch, Conservation and Utilization Division.

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NEFC Research Planning

RPAC staff coordinated a response to Center staff critiques of the Umbrella Proposal for Ecosystem Monitoring. The proposal outlines a strategy for seeking financial support to fund certain components of the monitoring program. The document also identifies capital expenditures for new equipment and costs associated with baseline toxic chemical surveys on the Northeast Continental Shelf that would not be supported under the Center's base allocation.

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